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# Climate services for the retail sector: Filomena's case

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Earth System Services Group

# The Filomena event



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# Filomena event in images



Image source: [https://www.elplural.com/el-telescopio/tech/espana-filomena-espacio\\_257533102](https://www.elplural.com/el-telescopio/tech/espana-filomena-espacio_257533102)  
Photo: ESA



Image source: <https://atalayar.com/content/sat%C3%A9lites-metop-y-msg-clave-en-la-alerta-ante-la-gran-nevada-ca%C3%ADda-en-buena-parte-de-espa%C3%B1a>  
PHOTO/Europa Press



Image source: [cuidateplus.marca.com/bienestar/2021/01/12/como-prevenir-actuar-caidas-hielo-176335.html](https://cuidateplus.marca.com/bienestar/2021/01/12/como-prevenir-actuar-caidas-hielo-176335.html)  
<https://>



Image source:  
<https://www.elperiodico.com/es/economia/20210111/efectos-filomena-cubiertos-seguros-11448387>



Image source: <https://www.heraldo.es/noticias/aragon/2021/01/09/temporal-filomena-la-nieve-tiene-un-efecto-psicologico-positivo-1413878.html>



# Climate influence on sporting goods sales: Filomena's proof



**Los madrileños arrasan con  
todas las botas de montaña en  
Decathlon**

**“PEOPLE FROM MADRID FINISH  
ALL HIKING BOOTS UNITS OF  
DECATHLON”**

Source: [https://autonomico.elconfidencialdigital.com/articulo/muy\\_confidencial/madrilenos-arrasan-todas-botas-montana-de-cathlon/20210118185349068531.html](https://autonomico.elconfidencialdigital.com/articulo/muy_confidencial/madrilenos-arrasan-todas-botas-montana-de-cathlon/20210118185349068531.html)

# How can climate services be seized by the retail sector?



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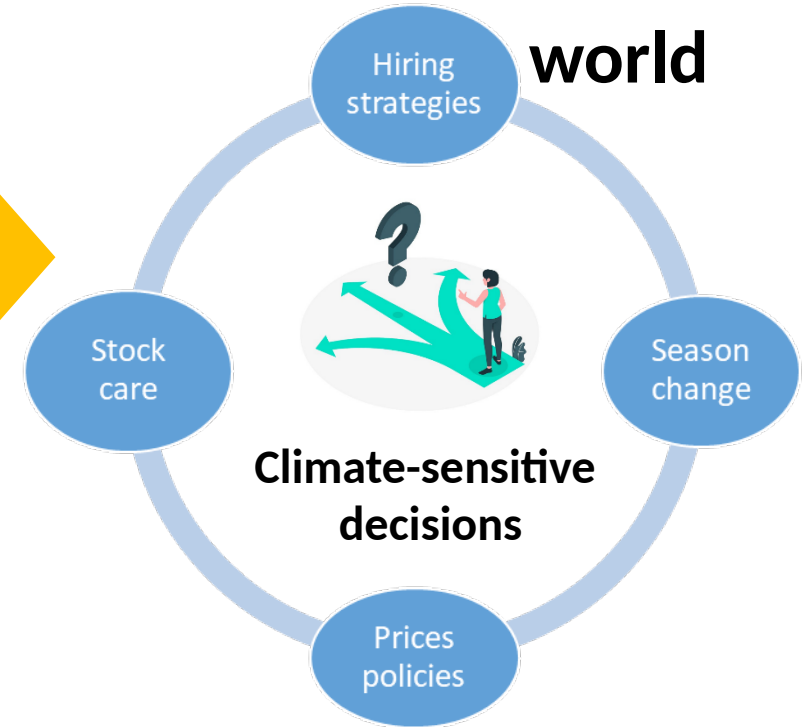
# From climate data to climate services

Climate  
world



**CLIMATE SERVICES**  
Co-development  
scientists/end-users

End-users  
world



Climate-informed  
decision-making

# Co-development of climate products: The example of our project with Decathlon



- Regular meetings
  - Meetings and workshops to get to know each other's field
- Creation of climate-specific products as an iterative process that involves both Decathlon and BSC. The final climate products are tailored to Decathlon needs.
  - Support in decision-making: climate-informed decision making
- Testing of co-designed climate services products to assess the added value to Decathlon

# Benefits of specific co-developed climate products for the retail sector



Image sources:

<https://rincondelemprendedor.es/como-invertir-con-exito-los-beneficios-de-nuestra-empresa/>

<https://www.nueva-iso-14001.com/2020/06/como-integro-la-sostenibilidad-en-los-ambitos-de-mi-empresa/>

## COMPANY BENEFITS

- Avoiding running out of products
- Avoiding producing too much
- Avoiding the extra-cost of keeping what is not sold
- Knowledge acquisition
- Optimising the hiring

## ENVIRONMENTAL BENEFITS

- Produced just what is necessary
- The stock transport is optimised (less carbon when transporting)



# An example to illustrate the potential of climate services products: Filomena's case study



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# Filomena's case study

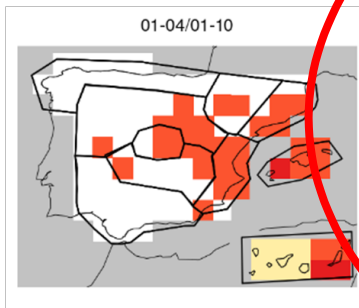
## ANOMALY MAP

OBSERVATIONS

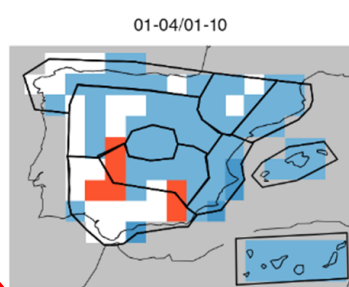
VS

PREDICTED TERCILE CATEGORY FOR SURFACE  
TEMPERATURE DIFFERENT WEEKS IN ADVANCE

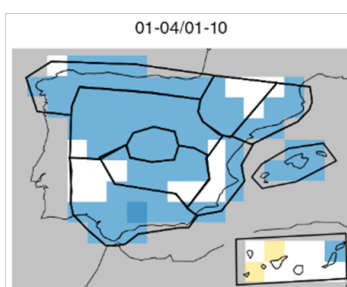
4 weeks in advance  
Forecast issued on Dec 10



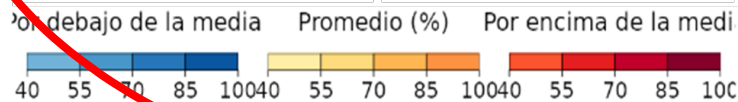
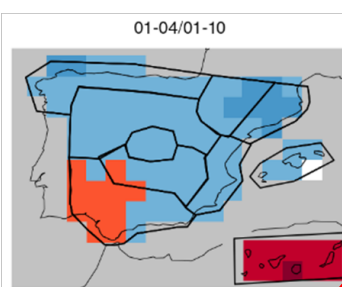
3 weeks in advance  
Forecast issued on Dec 17



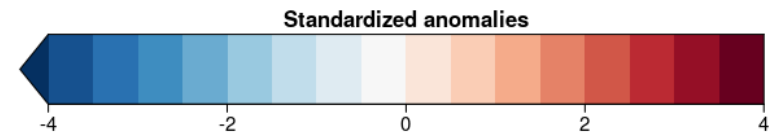
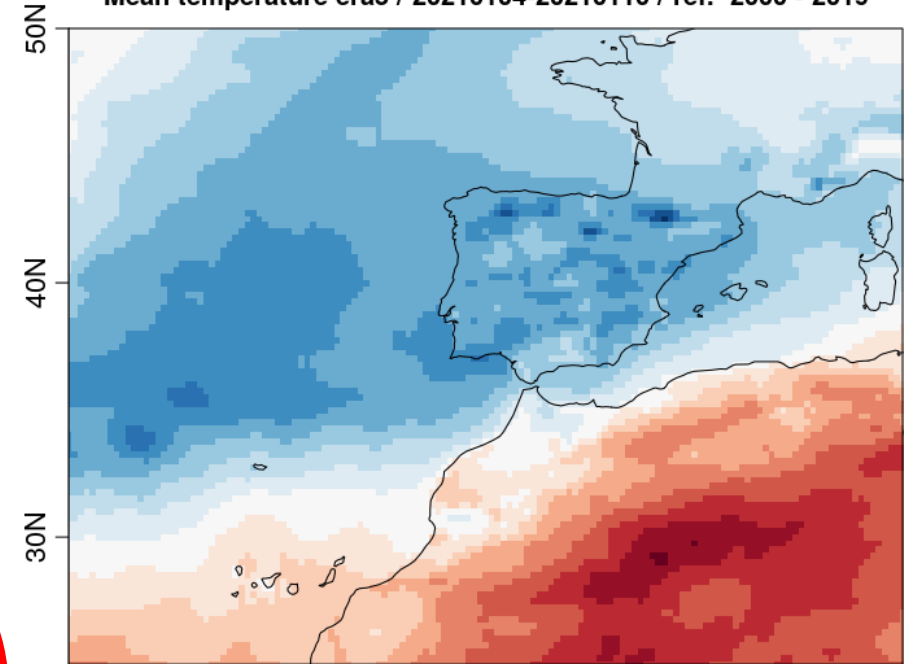
2 weeks in advance  
Forecast issued on Dec 24



1 week in advance  
Forecast issued on Dec 31



Mean temperature era5 / 20210104-20210110 / ref. 2000 - 2019



**WELL-PREDICTED 3 WEEKS  
IN ADVANCE!**



# Which was Filomena impact on Decathlon?

## A quick analysis of climate influence with Decathlon data



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# Data, period and sale variables used for the analysis

## Data

Weekly data of regional aggregations of Decathlon's stores (excluding Canarias and Melilla) and clicks on Decathlon's website <https://www.decathlon.es/>

## Period

The analysis is conducted for Filomena's week (from 2021-01-04 to 2021-01-10) and the surrounding ones

## Glossary

- **Winter and mountain sports:** sporting goods and accessories related to the different winter and mountain sports
- **Turnover:** Earnings related to sales.

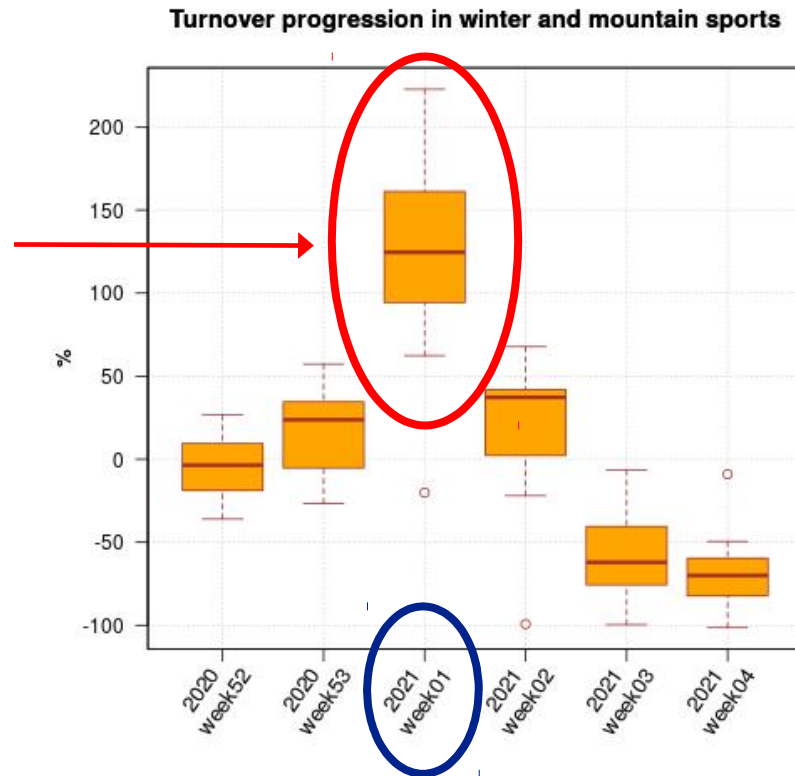
## Sale variables analysed

- **Turnover progression:** Percentage increase in sales relative to the same week of the previous year
- **Clicks progression:** Percentage increase in clicks relative to the same week of the previous year
- **Percentage share:** Percentage of winter and mountain sports (for sales or clicks) to the total (for sales or clicks)
- **Clicks:** clicks in Decathlon's website <https://www.decathlon.es/> (**total clicks**) or its winter and mountain sports sections (**winter and mountain sports clicks**)



# Turnover progression in winter and mountain sports VS store visitors progression

**LARGE INCREASE  
IN WINTER AND  
MOUNTAIN  
SPORTING  
GOODS SALES**

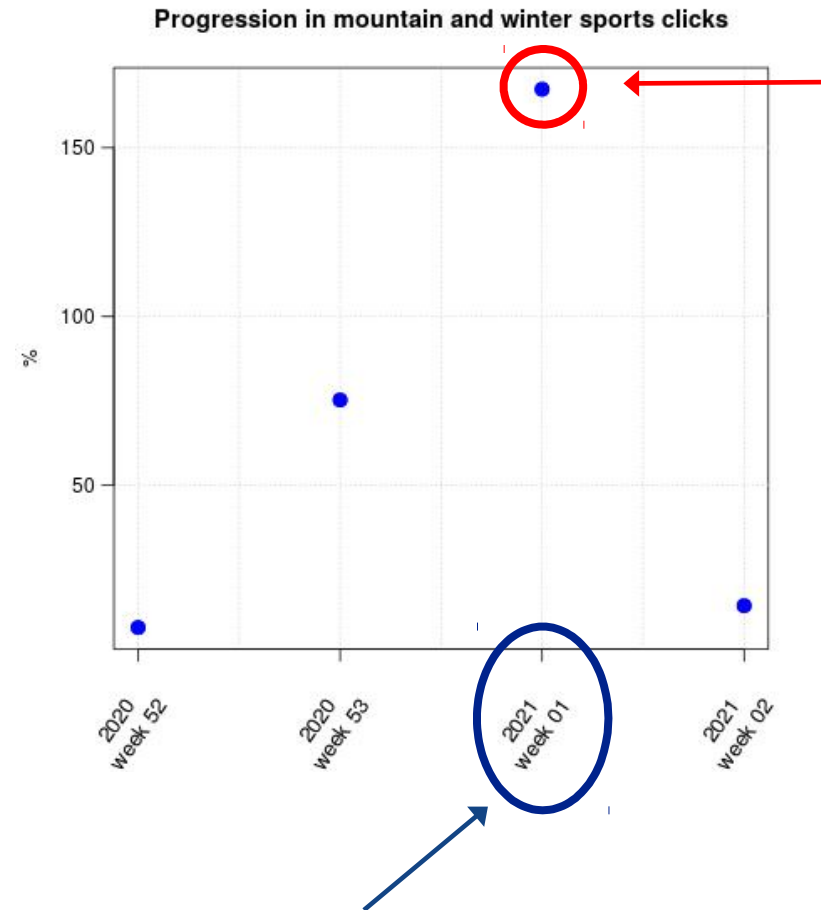
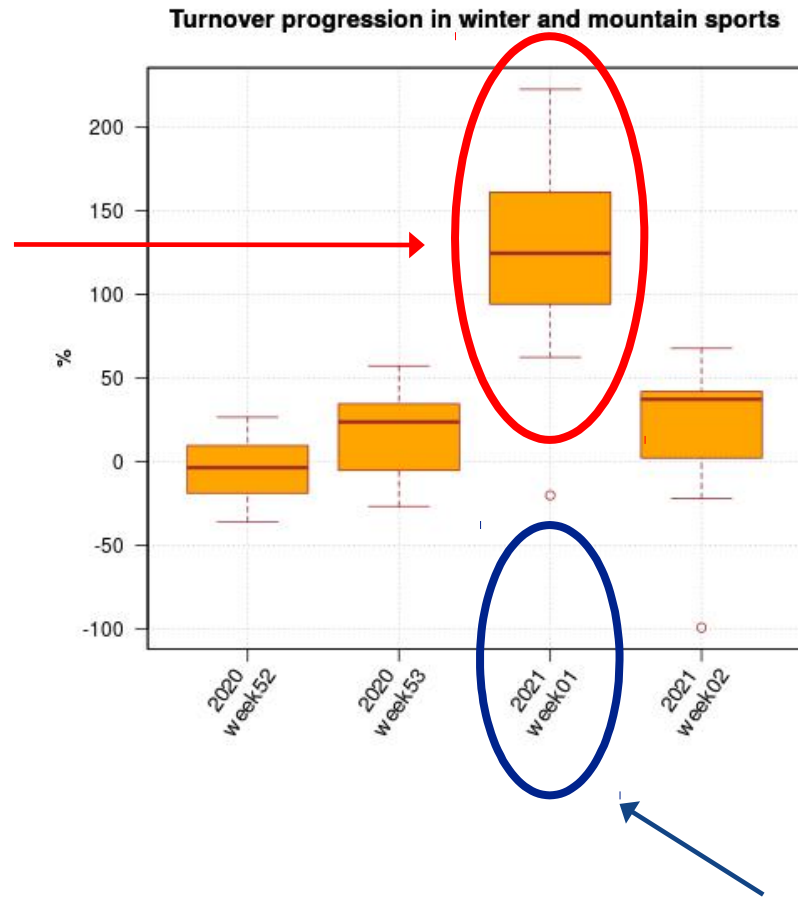


**NO SIGNIFICANT OR  
GENERALISED  
INCREASE IN  
DECATHLON'S  
STORES VISITORS**

**FILOMENA'S WEEK (from 2021-01-04 to 2021-01-10)**

# Turnover progression in winter and mountain sports VS progression in winter and mountain sports clicks

**LARGE INCREASE  
IN WINTER AND  
MOUNTAIN  
SPORTING  
GOODS SALES**



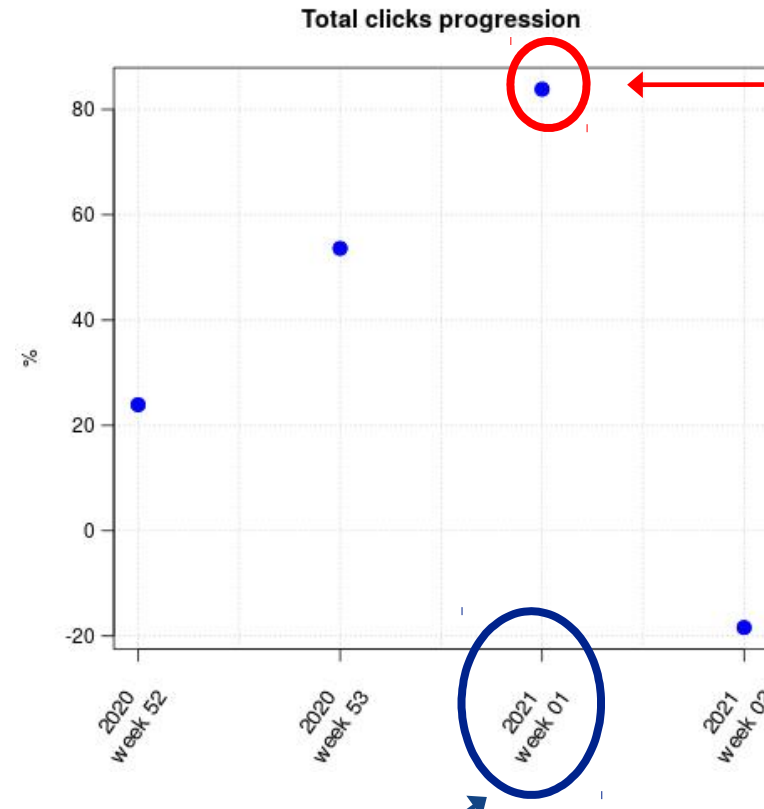
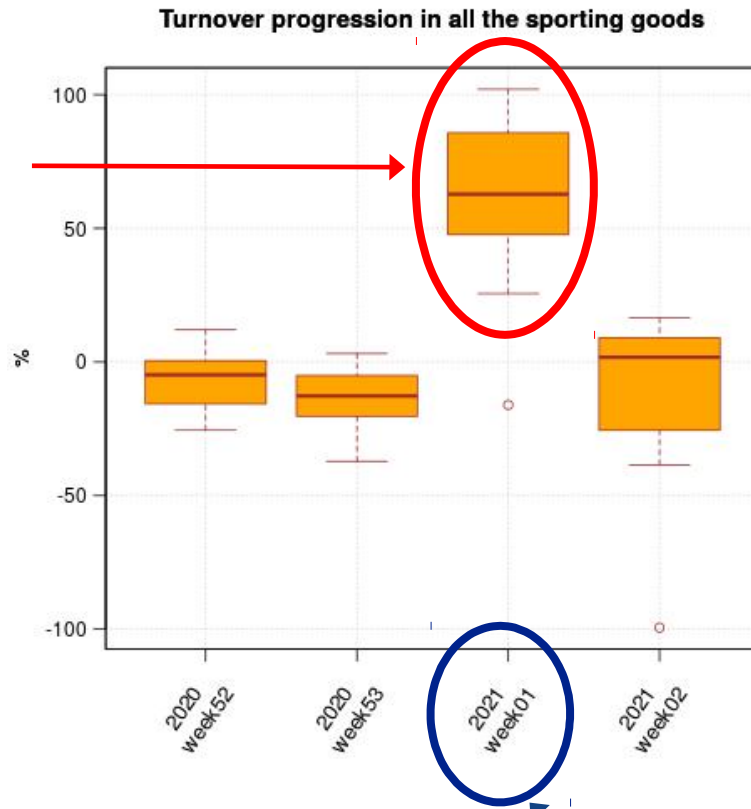
**HUGE INCREASE IN  
CLICKS REGARDING  
THE MOUNTAIN AND  
WINTER SPORTS  
SECTIONS ON  
DECATHLON'S  
WEBSITE**

**FILOMENA'S WEEK (from 2021-01-04 to 2021-01-10)**



# Turnover progression in total sales vs progression in total clicks

**GREAT INCREASE  
IN TOTAL SALES**

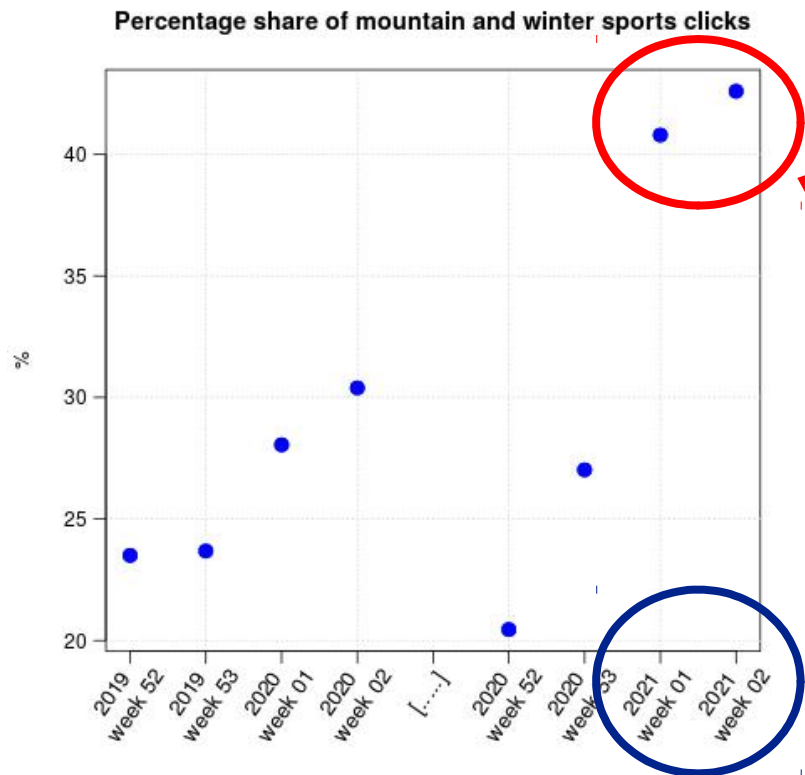
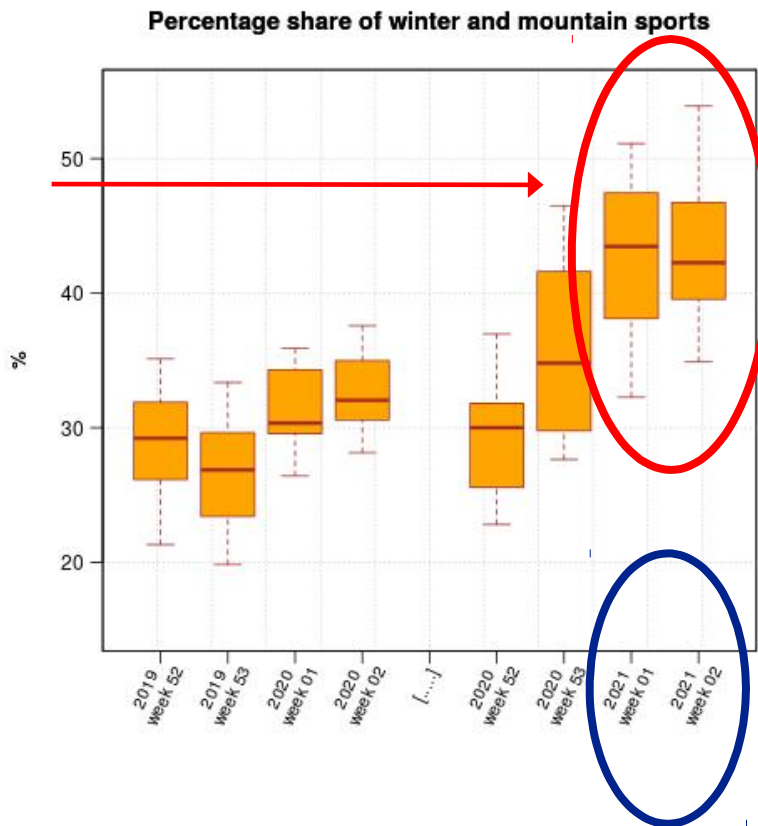


**LARGE INCREASE  
IN TOTAL CLICKS  
ON DECATHLON'S  
WEBSITE**

**FILOMENA'S WEEK (from 2021-01-04 to 2021-01-10)**

# Percentage share of winter and mountain sports VS percentage share of mountain and winter clicks

**SALES SHIFTED  
TOWARDS THE  
WINTER AND  
MOUNTAIN  
SPORTS**



**CLICKS SHIFTED  
TOWARDS THE  
WINTER AND  
MOUNTAIN  
SPORTS  
SECTIONS**

# How could climate services products have helped Decathlon to manage the Filomena event?

Designing weeks in advance strategies that may include:

- Salt provisioning
- Reduction of the stores' schedules: electricity and heating saving
- Warnings to the stores to let them design their strategies
  - Avoiding unnecessary risks to Decathlon's visitors
- Regional stock movements



# Conclusions and discussion



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- Climate products co-developed with end-users are able to offer added value for decision-making thanks to the implementation of climate-informed decisions.
- Climate services are an opportunity to optimise decision-making at multiple prediction time scales, such as subseasonal or seasonal. Ex: optimising stock transport or reducing CO2 emissions (future studies to quantify this effect are planned).
- Filomena's case study is an illustration of the potential value of subseasonal forecast as a climate service tool. We have quantified the influence of climate in the retail through an analysis of some sale variables using Decathlon data for Filomena's week and the surrounding ones. All the variables point towards an increase in the activity and sales in mountain and winter equipment during Filomena's event.
- Future more detailed studies to quantify patterns between different sale variables and climate variables will be conducted.



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# Thank you

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